

AMENDMENTS TO THE SPECIFICATION:

Page 1, please add the following new paragraph before paragraph [0001]:

[0000.2] CROSS-REFERENCE TO RELATED APPLICATIONS

[0000.4] This application is a 35 USC 371 application of PCT/EP 2004/052994
filed on November 17, 2004.

Please replace paragraph [0001] with the following amended paragraph:

[0001] ~~Specification~~ **BACKGROUND OF THE INVENTION**

Please replace paragraph [0002] with the following amended paragraph:

[0002] ~~Prior Art~~ **Field of the Invention**

Please replace paragraph [0003] with the following amended paragraph:

[0003] The invention relates to [[a]] **an-improved** self-boosting electromechanical friction
brake ~~having the characteristics of the preamble to claim 1.~~

Please add the following new paragraph before paragraph [0004]:

[0003.5] Description of the Prior Art

Please replace paragraph [0004] with the following amended paragraph:

[0004] One ~~such~~ friction brake, ~~is~~ known from International Patent Disclosure WO
03/056204 A1, ~~The known friction brake~~ is embodied as a disk brake. ~~It~~ **and** has a friction
brake lining, which for braking can be pressed by an electromechanical actuation device
against a brake body to be braked; in the case of a disk brake, the brake body is a brake disk.
The electromechanical actuation device of the known friction brake has an electric motor, a
step-down gear, and a screw drive as a rotation/translation conversion gear. With the
actuation device, the friction brake lining can be moved transversely or at an angle obliquely

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to the brake disk and thus pressed against it. The construction of the electromechanical actuation device can differ from the construction described here.

Page 4, please replace paragraph [0010] with the following amended paragraph:

[0010] ~~Summary of the Invention~~

SUMMARY AND ADVANTAGES OF THE INVENTION

Please replace paragraph [0011] with the following amended paragraph:

[0011] The friction brake of the invention ~~having the characteristics of claim 1~~ has a positive controller for the roller bodies, which prevents sliding of the roller bodies on the raceways, or at least limits ~~[[it]]~~ **sliding** such that the roller bodies do not leave their raceways. The invention prevents the roller bodies from being able to move arbitrarily far away from their outset position and preferably causes the roller bodies to return to their outset position when the friction brake lining is thrust back into its outset position. A gradual "wandering" of the roller bodies toward the ends of their raceways or out of the raceways when the friction brake is actuated many times is avoided.

Please delete paragraph [0012].

Please replace paragraph [0013] with the following amended paragraph:

[0013] **Advantageous features and refinements of the invention are disclosed.** As a simple possibility for a positive controller, ~~claim 2 provides~~ an end stop **is provided** for the roller bodies, which restricts a travel of the roller bodies. This feature of the invention is especially suitable for friction brakes with self-boosting in only one direction of rotation of the brake body. The end stop, or two end stops, can be mounted on the end of the raceway or

raceways, respectively, so that the roller body is moved in compulsory fashion back into its outset position when the friction brake lining is thrust back into its outset position. The roller body as a result necessarily occupies its outset position at the onset of each brake actuation. It is an advantage that the friction brake is released when a roller body is moved back into its outset position from the end stop. That is, no contact pressures, or at most only slight contact pressures make sliding of the roller body on the raceways for restoration to the outset position difficult are operative. However, an end stop may also be located at some other point, such as a different end of the raceway of the roller body. It is understood that braking is also possible for the opposite direction of rotation of the brake body, although then without self boosting or even with self-attenuation. The end stop need not come directly into contact with the roller body; for instance, it may cooperate with a roller body cage instead.

Page 5, please replace paragraph [0014] with the following amended paragraph:

[0014] ~~Claim 4~~ **One embodiment** contemplates a forced motion of the roller bodies with the displacement of the friction brake lining upon actuation of the friction brake. The roller bodies are accordingly moved for instance at half the speed and for half the distance as the friction brake lining, compared to a purely rolling motion without sliding. In this feature of the invention, the applicable position of the roller bodies is determined in compulsory and unambiguous fashion by the position of the friction brake lining.

Please replace paragraph [0015] with the following amended paragraph:

[0015] One possibility for such a positive controller ~~is as in claim 5~~ to provide a gear wheel on the roller body, which meshes with a rack on the friction brake lining and/or on the ramp.

Please replace paragraph [0016] with the following amended paragraph:

[0016] ~~Claim 7~~ **Another embodiment** provides a roller body cage, which keeps all or some of the roller bodies of the friction brake at their spacing from one another. The roller body cage, which has the same function as a ball cage of a ball bearing, moves the roller bodies with one another in compulsory fashion and prevents a displacement of one roller body or individual roller bodies relative to the other roller bodies. In this case, one positive controller of a roller body suffices for all the roller bodies connected to the roller body cage.

Page 6, please replace paragraph [0017] with the following amended paragraph:

[0017] The positive controller may engage one or more roller bodies directly. ~~Claim 8 is directed to the~~ **One** possibility **is** that the positive controller engages the roller body cage and by way of it indirectly moves the roller bodies in compulsory fashion. For instance, the gear wheel that meshes with the rack is mounted on the roller body cage.

Please replace paragraph [0018] with the following amended paragraph:

[0018] ~~Claim 9 provides that~~ **In one embodiment,** at least one roller body guides the friction brake lining transversely to its displacement direction in a statically determined way. The phrase "transversely to the displacement direction" means guidance of the friction brake lining in a plane parallel to a brake disk, or radially to an axis of rotation of the brake disk. This feature avoids play of the friction brake lining transversely to its displacement direction, in a plane parallel to the brake disk. A static overdeterminedness of the bearing and guidance of the friction brake lining transversely to its displacement direction, which because of manufacturing tolerances can cause mechanical stresses and increased wear, is also avoided.

This feature of the invention has the advantage of making only slight demands in terms of manufacturing tolerances.

Please replace paragraph [0019] with the following amended paragraph:

[0019] A refinement ~~according to claim 10~~ provides that two roller bodies guide the friction brake lining transversely to its displacement direction in a statically determined way. As a result, in addition to the play-free guidance of the friction brake lining transversely to its displacement direction, a rotation of the friction brake lining about an imaginary axis that penetrates the friction brake lining at a right angle is avoided. A third roller body and optionally further roller bodies have no guidance function for the friction brake lining transversely to its displacement direction, in order to avoid a static overdeterminedness of the transverse guidance of the friction brake lining, or in other words radially to a brake disk.

Page 7, please replace paragraph [0020] with the following amended paragraph:

[0020] If the roller bodies that guide the ~~roller body~~ **friction brake lining** transversely to its displacement direction in a statically determined way are balls, ~~claim 10 provides for a four-~~ point bearing of the friction brake lining **may be provided** by the balls. This means that the balls, in each spherical channel in which they rest, rest on the spherical channel at two points, one on each side of an imaginary longitudinal center line of the spherical channel. That is, the balls rest in the two spherical channels at a total of four points. The desired two-point contact in each spherical channel can be attained by means of a rounding, of other than circular shape, of the spherical channel, or for instance by means of a prismatic shape of the spherical channels.

Please replace paragraph [0021] with the following amended paragraph:[0021] If cylindrical or conical rollers are used as roller bodies, then ~~in accordance with claim 12~~ they ~~are~~ **may be** disposed with an inclination transversely to the displacement direction of the friction brake lining, in order to accomplish the desired statically determined guidance of the friction brake lining transversely to its displacement direction.

Please delete paragraph [0022].

Page 8, please replace paragraph [0023] with the following amended paragraph:

[0023] ~~Drawing~~ **BRIEF DESCRIPTION OF THE DRAWINGS**

Please replace paragraph [0024] with the following amended paragraph:

[0024] The invention is described below in terms of exemplary embodiments ~~shown in the drawing. Shown are:~~ **and in conjunction with the drawings, in which:**

Please replace paragraph [0025] with the following amended paragraph:

[0025] Fig. 1, ~~a~~ **is an exploded** schematic perspective view of a self-boosting electromechanical friction brake; **and**

Please replace paragraph [0026] with the following amended paragraph:

[0026] Figs. 2 through 8; **show** various possible designs of roller bearings of a friction brake lining of the friction brake according to the invention shown in Fig. 1.

Please delete paragraph [0027].

Please replace paragraph [0028] with the following amended paragraph:

[0028] ~~Description of the Exemplary Embodiment~~

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please replace paragraph [0029] with the following amended paragraph:

[0029] Fig. 1 schematically shows a self-boosting electromechanical friction brake 10, which is embodied as a disk brake. ~~The friction brake 10~~, and which has two friction brake linings 12, 14, which are located one on either side of a brake disk 16. One of the two friction brake linings 12 rests firmly, that is, immovably, in a brake caliper 18. This friction brake lining 12 will hereinafter be called the fixed friction brake lining 12. Of the brake caliper 18, only a part located below the brake disk 16 in terms of the drawing is shown, because a part of the brake caliper 18 located above the brake disk 16 would conceal the essential parts of the friction brake 10. The brake caliper 18 fits as usual over the brake disk 16 outside the circumference of the latter.

Page 9, please replace paragraph [0031] with the following amended paragraph:

[0031] The friction brake lining 14 is connected as usual fixedly and nondetachably to a brake lining holder plate 20, which on ~~their~~ its back side facing away from the brake disk 16 ~~have~~ has ramps 22, which extend in the direction of rotation of the brake disk 16, or in other words in the displacement direction of the friction brake lining 14. On a front side of an abutment plate 24, oriented toward the brake disk 16, there are ramps 26, complementary to the ramps 22 of the brake lining holder plate 20, on which the ramps 22 of the friction brake lining 14 are braced via roller bodies 28. The roller bodies 28 are located between the ramps 22 of the friction brake lining 14 and the ramps 26 of the abutment plate 24; the roller bodies 28 roll on the ramps 22, 26. The roller bodies serve to reduce friction. In Fig. 1, the roller

bodies are cylindrical rollers, but conical rollers, balls, or other roller bodies may be used instead.

Page 11, please replace paragraph [0035] with the following amended paragraph:

[0035] In the exemplary embodiment shown, three ramps 22 are disposed on the brake lining holder plate 20, and three complementary ramps 26 are disposed on the abutment plate 24. This produces a statically determined bracing of the friction brake lining 14. A statically overdetermined bracing with more than three pairs of ramps 22, 26 is conceivable. Fewer than three pairs of ramps 22, 26 are also possible, for instance if two pairs of ramps extend over a width of the brake lining holder plate 20 or if one pair of ramps extends ~~or~~ over a large proportion of the surface area of the friction brake lining holder plate 20 (not shown).

Page 13, please replace paragraph [0039] with the following amended paragraph:

[0039] Another exemplary embodiment of a positive controller of the invention is shown in Figs. 3 and 4; Fig. 3 shows an elevation view and Fig. 4 a cross section of one of the roller bodies 28. The roller body 28 has pegs or stub shafts 36 on both ends, on which pegs gear wheels 38 are rotatably mounted. The ramps 22, 26 on the brake lining holder plate 20 and on the abutment plate 24 are provided with racks 40, 42, which extend on both sides of the ramps 22, 26 parallel to the ramps 22, 26 and with the ramp angle as the ramps 22, 26. The gear wheels 38 of the roller bodies 28 mesh with the racks 40, 42. ~~The gear wheels 38 that mesh with the racks 40, 42~~ and form a positive controller of the roller bodies 28, which

~~compel~~ **compels** a purely rolling motion of the roller bodies 28 on the ramps 22, 26 and prevent sliding.

Page 16, please replace paragraph [0044] with the following amended paragraph:

[0044] Another exemplary embodiment of a statically determined guidance transversely to the displacement direction of the movable friction brake lining 14 is shown in Fig. 8. ~~Fig. 8 shows~~ **which is** a section through a radially inner roller body 28 ~~of Fig. 1~~, and through the radially outer roller body, located in the middle of the friction brake lining holder plate. As the roller bodies 28 here, rollers are used which are inclined obliquely. Roller bodies 28 located on the outside, that is, roller bodies 28 located in the middle in Fig. 1, are obliquely inclined oppositely to the inner roller bodies 28, in order to achieve the desired guidance of the movable friction brake lining 14 transversely to its displacement direction. The ramps 22, 26 also have the transverse inclination. The transverse inclination of the roller bodies 28 varies, in order to keep the stress on them the same. The inclination of the radially outer, single roller body 28 is greater than the inclination of the two radially inner roller bodies.

Please add the following new paragraph after paragraph [0044]:

[0045] The foregoing relates to a preferred exemplary embodiment of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.